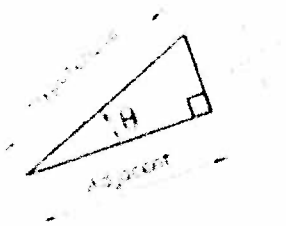
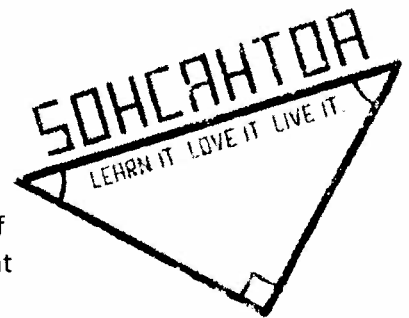


Trigonometry Task

You are employed as a math instructor at the Army/Navy base, and your job is to help new recruits (young men and women ages 18-20) understand how math, especially right triangles, will be beneficial to them in their support jobs in the military. As any instructor knows, you have to provide interesting examples of how math is involved in the real world so the students can make connections. You and your colleagues are creating a booklet (which will be digitized) so the recruits can have extra practice with real-world, everyday applications using angles of elevation and depression and right triangles. The lives of their co-workers could be at stake if they do not have a solid grasp of this important mathematical concept.



You will create a one-page illustrated word-problem which provides a real-life application using SOHCAHTOA, angle of elevation (or depression), your method of solving the problem explained clearly using mathematical language, and of course, the solution and a way to check that your answer is correct and logical. And, because the recruits are under a great deal of stress, humor is encouraged. Keep in mind the laws of physics.

In order to create an eye-appealing product, your boss has put forth these basic requirements:

- Use an 8 1/2" x 11" piece of paper (provided).
- Your illustration will take up 75% of the page; your word problem, method of solving, and solution will be neatly written out in the remaining 25%. (See examples provided.)
- Your illustration must include several different colors, straight lines, and scenery.

A right triangle with a vertical leg labeled '27 m' and a horizontal leg labeled '36 m'. A right angle symbol is at the bottom left vertex. The angle at the bottom right vertex is labeled with the Greek letter θ . A person is shown at the top of the vertical leg, appearing to be in motion, with a trail of dots behind them.	<p>Word problem; method of solution; solution; and check</p>
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Reflection

Choose three (3) of the following reflection questions to answer in paragraph form. Be very specific with your references back to your assignment. Vague answers are to be avoided.

1. How is math helpful in finding horizontal distance and vertical height? Explain in relation to your word problem.
2. How do geometric relationships and measurements help us to solve problems and make sense of our world? Explain in relation to your word problem.
3. How are the sides of right triangles related? Use your problem as an example or support.
4. Under what conditions are trigonometric ratios used?
5. How could you rewrite your problem to make it more complex? Explain why doing this would make it more complex.
6. What are the key mathematical terms one needs to have a deep understanding of to make sense of your word problem? Explain.



Requirements: It's an academic paper, so what does that mean?

- academic font
- 11/12 pt.
- one-inch margins
- double-spaced
- proper heading

(And yes, Ms. Peterson will inform your English teacher about your writing...)

Math—Problem Solving: Trigonometry Project

Name: _____ Block: _____

DOMAIN	4 Superior	3 Proficient	2 Developing	1/0 Below expectations
Mathematical concepts 1x	Word problem, method of solution, solution, and check show a complete understanding of the mathematical concepts.	Word problem, method of solution, solution, and check show a substantial understanding of the mathematical concepts.	Word problem, method of solution, solution, and check demonstrate an incomplete understanding of the mathematical concepts.	Word problem, method of solution, solution, and check show a very limited understanding of the underlying concepts (OR assignment is not complete) and needs to be redone.
Mathematical reasoning 1x	Student demonstrates complex and refined mathematical reasoning. Explanation is detailed and clear.	Student demonstrates effective mathematical reasoning. Explanation is clear. A few more details would improve it.	Student demonstrates some evidence of mathematical reasoning, but it is not efficient or completely effective. Explanation is a little difficult to understand, but includes basic, critical components.	Student demonstrates little or NO evidence of mathematical reasoning. Explanation is difficult to understand and is missing several key components.
Diagram 1x	Diagram is clear, accurate, and properly labeled. It adds to the reader's understanding of the procedure.	Diagram is clear and accurate. Labels are usually accurate.	Diagram lacks accuracy and/or clarity. Labels may be missing or misplaced.	Diagram is not acceptable. It needs to be redone.
Mathematical terminology and notation 1x	Sophisticated mathematical language and notation are used throughout assignment. It is very clear how to set up and solve the problem.	Correct and appropriate terminology and notation are usually used, making it fairly easy to understand what was done.	Correct terminology and notations are not consistently used. Vague or general terms are sometimes substituted for mathematical terms.	There is little usage of appropriate terminology and notation.
Neatness and organization 0x (feedback only)	The work is presented in a neat, clear, organized fashion that is easy to read.	The work is presented in neat and organized fashion that is usually easy to read.	The work is presented in a haphazard fashion. Writing could be neater.	The work appears sloppy and unorganized. It is hard to know what information goes together. It should be redone with more attention to communicating clearly.
Reflection 1x	You connect your reflection and thought processes to the problem and previous learning experiences and/or prior knowledge with many details. It is obvious that you really examined your thinking during this process. Sophisticated math terminology is included in reflection.	You use the reflection to summarize your thought process. You have some details in your reflection about the problem. There is some evidence of reflection. Appropriate math terminology is included in reflection.	You neglect to include enough details to demonstrate your thinking process in your reflection. There is little evidence of reflection. You just tell me what you did without explaining why. Vague vocabulary is used rather than mathematical language.	You do not reflect on the process you used. No reflection of thinking is presented.

Grade:

A range: 19-20

B range: 15-18

C range: 10-14

Do-over range: 9 and below